

## FOSTER RAIL

### Future of Surface Transport Research Rail

Coordination and Support Action

Grant Agreement No 605734

Date of Annex I against which the assessment will be made: 23-05-2013

## FOSTER-RAIL, FOSTER-ROAD, MESA-FOSTER-WATERBORNE and ALICE

### Deliverable D1.1

Clustering multi-modal research and innovation issues between ETPs

<b>WP FOSTER RAIL</b>	WP1	Cooperation, Communication and Coordination with other ETPs and national technology platforms
<b>Task</b>	Task 1.1	Clustering multi-modal research and innovation issues with other ETPs

<b>Dissemination level<sup>1</sup></b>	PU
<b>Nature<sup>2</sup></b>	R

<b>Due delivery date</b>	M+6
<b>Actual delivery date</b>	February 2015

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<b>Document Version:</b>	<b>Date</b>	<b>Author(s)</b>
V1.0	23/04/2014	Yves Amsler
V2.0	14/05/2014	Participants to the Joint ETPs meeting 14/05/2014
V2.1	31/05/2014	Revision by ALICE

<sup>1</sup> Dissemination level: **PU** = Public, **PP** = Restricted to other programme participants (including the JU), **RE** = Restricted to a group specified by the consortium (including the JU), **CO** = Confidential, only for members of the consortium (including the JU)

<sup>2</sup> Nature of the deliverable: **R** = Report, **P** = Prototype, **D** = Demonstrator, **O** = Other

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V2.2	17/07/2014	Revision by UNIFE, ERTRAC and POLIS
V3.0	21/07/2014	Update draft into final version by UITP
V4.0	09/02/15	UITP update



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## 1. Executive Summary

### 1.1. Focus of the deliverable

FOSTER RAIL (Future of Surface Transport Research Rail) is a FP7 CSA project, with a lifetime of 3 years. It started in on the 1<sup>st</sup> of May 2013, and it is aimed at supporting the work of ERRAC (the European Rail Research Advisory Council). FOSTER RAIL was designed to cover the activities outlined by **SST.2013.6-1 Strengthening the research and innovation strategies of the transport industries in Europe**, in this particular case the activities and research of the rail European Technology Platform.

Among its work packages (WPs), FOSTER RAIL WP1, Task 1.1, is specifically dedicated to the support of the project partners (and ERRAC) in relationship with the other surface transport European Technology Platforms.

These surface transport European Technology Platforms (ETPs) - ERRAC<sup>3</sup>, ERTRAC<sup>4</sup> and WATERBORNE – have already developed roadmaps for European research, the most updated versions of which have been published on their websites in 2013<sup>5</sup>. Moreover, ALICE ETP, recognized as such in July 2013, is in the process of delivering the research roadmaps for the Logistics sector.

The three ETPs have each been granted in 2013 a new Cooperation and Support Action (CSA), namely FOSTER-RAIL, FOSTER-ROAD and MESA FOSTER-WATERBORNE for updating their work. In addition the ALICE CSA, WINN, started in October 2012. A particular feature of the four CSAs is that they all include a common set of tasks regarding ETPs Cooperation, Communication and Coordination.

The four ETPs met several times in face meetings or through conference calls to review the current structure and organization of each ETP, as well as the current status of their cooperation. They clustered topics of common interest and agreed upon – and started running - a set of coordinated actions. They identified potential participants for the joint works, which shall be completed regularly. Due to the different timescales of the three projects<sup>6</sup>, to the publication at the end of 2013 of the Research and Innovation Work Programme HORIZON 2020, and to the agreed planning of works, the ETPs decided that a delivery of their cooperation report by mid-2014 would be more appropriate. It had also been decided that the report – which had been renamed “Clustering multi-modal research and innovation issues between ETPs” – would be prepared jointly by the three ETPs, even though the overall presentation of the report might slightly differ for each CSA, since each CSA has its own template for deliverables.

**The current document is the FOSTER-RAIL deliverable D1.1 summarizing the joint ETPs initiatives**

<sup>3</sup> ERRAC: European Rail Research Advisory Council.

<sup>4</sup> ERTRAC: European Road Transport Research Advisory Council.

<sup>5</sup> [www.errac.org](http://www.errac.org); [www.ertrac.org](http://www.ertrac.org); [www.waterborne-tp.org](http://www.waterborne-tp.org)

<sup>6</sup> Since FOSTER-ROAD started on 1 March 2013, FOSTER-RAIL on 1 May 2013 and MESA FOSTER-WATERBORNE on 1 September 2013, the delivery date has been postponed for mid-2014.

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developed in the recent past or agreed for the very near future.

## 1.2. Description of the deliverable

Chapter 1 is the Executive Summary.  
 Chapter 2 presents the list of acronyms  
 Chapter 3 presents the current organisation of the ETPs and ETPs' methodology for cooperation.  
 Chapter 4 describes the clustering process for multi-modal research and innovation issues, as well as the finalized and on-going outcomes of this coordination/collaborative effort.  
 Chapter 5 covers the list of experts from the various ETPs potentially involved in joint works.

## 2. List of Acronyms

ALICE	Alliance for Logistics Innovation through Collaboration in Europe
CAPIRE	Coordination Action on PPP Implementation for Road-Transport Electrification
CER	The Community of European Railways
CSA	Cooperation and Support Action
EFRTC	The European Federation of Railway Trackworks Contractors
EGVI	European Green Vehicle Initiative
EIM	The European Rail Infrastructure Managers
EPF	The European Passengers' Federation
EPoSS	European Platform on Smart Systems



EPPTOLA	The European Passenger Train and Traction Operating Lessors Association
ERA-NET	European Research Area - Network
ERFA	The European Rail Freight Association
ERRAC	The European Rail Research Advisory Council
ERTRAC	European Road Transport Research Advisory Council
ETP	European Technology Platform
EURNEX	The European Rail Research Network of Excellence
EV	Electric Vehicle
FOSTER-RAIL	Future Of Surface Transport Research-Rail
FOSTER ROAD	Future Of Surface Transport Research-Road
FP	Framework Programme
F&L	The European Freight and Logistics Leaders Forum
IP	Innovation Programme
ITS	Intelligent Transport Systems
JU	Joint Undertaking
LDT	Long-Distance Transport
MESA-FOSTER WATERBORNE	Maritime Europe Strategy Action - Future Of Surface Transport Research - Waterborne
PPP	Public-Private Partnership
RTD	Research and Technical Development
R&D	Research and Development
R&I	Research and Innovation
SETRIS	Strengthening European Transport Research and Innovation Strategies
SRRA	Strategic Rail Research Agenda
SRRIA	Strategic Rail Research and Innovation Agenda
TA	Technology Areas
TRIP	Transport Research & Innovation Portal
UIC	The International Union of Railways
UIP	The International Union of Wagon Keepers

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UITP	The International Association of Public Transport
UIRR	The International Union of combined Road-Rail transport companies
UNIFE	The Association of the European Rail Industry
WATERBORNE TP	The European Technology Platform for Waterborne transport
WINN	European Platform Driving KnowlEdge to INNOvations in Freight Logistics
WP	Work Package



### 3. ETPs' ORGANISATION AND METHODOLOGY FOR COOPERATION

#### 3.1. ORGANISATION OF ETPs

##### 3.1.1. ERRAC

**ERRAC**<sup>7</sup> – the European Rail Research Advisory Council – is the first surface transport ETP. It had been created in 2001.

ERRAC covers all forms of passenger and freight rail transport: from conventional, high speed passenger and freight applications to urban and regional services. ERRAC membership<sup>8</sup> is comprised of the rail stakeholders associations and their members: UIC, UNIFE, UITP; CER; EIM; ERFA; UIP; UIRR; EFRTC; EPPTOLA; EPF; F&L; EURNEX.

The **ERRAC Plenary** comprises of the ERRAC members plus invited members of Academia and research institutions, Member States and the European Commission. It gathers 45 representatives. The ERRAC Plenary meets twice a year. It is responsible for: establishing the strategic orientations of ERRAC proposed at European and Member State levels; approving the work programmes; and adopting the ERRAC official documents.

The **ERRAC Strategic Board** (ERRAC SB) is in charge of approving and monitoring the proper implementation of ERRAC strategy. It is the highest decision-making body initiating the general policy of ERRAC according to its aims and mission.

The **ERRAC Steering Committee** (ERRAC SC) is the body responsible for the operational management of ERRAC activities. It meets every two months and oversees the creation, composition and operation of any ERRAC Working Groups and Permanent Advisory Groups established for the effective and collaborative working of ERRAC. ERRAC has two Permanent Advisory Groups (PAGs), one for Academia and research institutions and one for Member States. ERRAC SC also supervises the activities of ERRAC Secretariat and the production of ERRAC documents.

ERRAC is mainly supported by the rail representative associations UIC, CER, EIM, UITP and UNIFE<sup>9</sup>, by other partners of the CSAs granted by the European Commission to ERRAC, as well as by other stakeholders from the rail sector. The ERRAC secretariat is performed by UIC and UNIFE.

**ERRAC Working Groups** are made of experts coming from the ERRAC members, and are responsible for the preparation of the ERRAC documents. The Working Groups are managed and chaired by

<sup>7</sup> [www.errac.org](http://www.errac.org)

<sup>8</sup> <http://www.errac.org/about/members/>

<sup>9</sup> [www.uic.org](http://www.uic.org); [www.cer.be](http://www.cer.be); [www.eimrail.org](http://www.eimrail.org); [www.uitp.org](http://www.uitp.org); [www.unife.org](http://www.unife.org)

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Working Group Leaders, selected from the ERRAC members. The ERRAC Working Groups are organized on an ad-hoc basis.

ERRAC produced a Strategic Rail Research Agenda (SRRRA) in 2002 which has been updated in 2007, and in 2012 a vision for rail: “Rail Route 2050: the sustainable backbone of the Single European Transport Area”.

The former ERRAC CSA closed in June 2012 was called ERRAC ROADMAPS, which purpose was to develop technology roadmaps.

**As part of ERRAC ROADMAPS CSA, six Work Packages had been implemented:**

- WP01 - The Greening of Surface Transport
- WP02 - Encouraging Long-distance Modal Shift & De-congesting Transport Corridors: The passenger roadmap
- WP03 - Urban, Suburban and Regional Rail and Urban Mobility
- WP04 - Improving Safety & Security
- WP05 - Strengthening Competitiveness
- WP06 - Evaluation Working Group

**Altogether, these Work Packages have published 10 deliverables in 2012, in line with the SRRRA 2007:**

- Towards 2030 – Energy Roadmap for the European Railway sector
- Towards 2030 – Noise and Vibrations Roadmap for the European Railway Sector
- Encouraging Long-distance Modal Shift & De-congesting Transport Corridors: The passenger roadmap
- Encouraging Long-distance Modal Shift & De-congesting Transport Corridors: The freight roadmap
- Urban, Suburban and Regional Rail Research Roadmap
- Urban Mobility Research Roadmap
- Joint ERTRAC-ERRAC Urban Mobility Research Roadmap (with **ERTRAC**, see clause 3.1)
- Improving Safety and Security Roadmap
- Strengthening Competitiveness Roadmap
- A continuous updated and maintained database

**The ERRAC ROADMAPS Working Groups are no longer active. They have been replaced within FOSTER-RAIL CSA by seven new Work Packages:**

- **WP1: Cooperation, Communication and Coordination with other ETPs and national technology platforms**
- **WP2: Rail Business Scenarios**

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- WP3: Strategic Rail Research and Innovation Agenda (SRRIA)
- WP4: Technology Roadmaps, Exploitation & Implementation
- WP5: Fostering innovation and partnerships: ERRAC and SHIFT2RAIL
- WP6: Monitoring to improve rail research innovation
- WP7: Dissemination

**Each Work Package is able to set up a Task Force when deemed necessary.**

WP1 is the one in charge of the coordination with other ETPs.

In addition, the rail sector has launched in Horizon 2020<sup>10</sup> a PPP for rail research called the SHIFT2RAIL Joint Undertaking (JU). The SHIFT2RAIL JU is structured in five “Innovation Programmes”<sup>11</sup>.

- IP1 : “NEW GENERATION RAIL VEHICLES”
- IP2: “ADVANCED TRAFFIC MANAGEMENT AND CONTROL SYSTEMS”
- IP3 : “COST EFFICIENT HIGH CAPACITY INFRASTRUCTURE”
- IP4: “SEAMLESS TRAVEL ACROSS EUROPE”
- IP5 : “SUSTAINABLE & ATTRACTIVE EUROPEAN FREIGHT TRANSPORT”

The creation of the legal entity of the SHIFT2RAIL JU was made in 2014.

The relationship between ERRAC and SHIT<sup>2</sup>RAIL is the focus of WP5 of FOSTER-RAIL. The FOSTER-RAIL project also facilitated the requirement analysis in SHIFT2RAIL, by linking relevant partners to the SHIFT2RAIL development.

The ERRAC Strategic Board is the SHIFT2RAIL JU's Advisory Council also after the official creation of the Joint Undertaking.

The ERRAC Strategic Board has provided advice and guidance to the people working to establish the Shift2Rail Joint Undertaking. The ERRAC Strategic Board will provide ongoing advice and guidance to the Shift2Rail JU on; fit and alignment to the overall strategic vision of Europe's railways as set out in the ERRAC SRRIA (Strategic Rail Research and Innovation Agenda).

<sup>10</sup> Horizon 2020 is the new EU Framework Programme for Research and Innovation – 2014-2020:  
<http://ec.europa.eu/programmes/horizon2020/>

<sup>11</sup> The master plan of the SHIFT<sup>2</sup>RAIL JU is currently (May 2014) under development by the European Commission's services.

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### 3.1.2. ERTRAC

**ERTRAC<sup>12</sup>**, the European Road Transport Research Advisory Council – had been created in 2003. ERTRAC has more than 50 members, representing all the actors of the Road Transport System: transport supply industry - vehicle manufacturers, automotive suppliers, road infrastructure, energy/fuel supply, Intelligent Transport Systems (ITS); Research providers; European associations including users/consumers representatives; EU Commission services; National bodies; local authorities (Cities and Regions).

#### ERTRAC Plenary

The ERTRAC Plenary gathers all the [ERTRAC members](#) three times a year. The plenary is responsible for defining the strategic orientations of ERTRAC, and to enable a shared vision from all the Road Transport stakeholders. The Plenary adopts the ERTRAC documents, and decides on the strategic approaches for the technology platform.

#### ERTRAC Executive Group

The [ERTRAC Executive Group](#) is formed by the Chairman and the Vice-Chairmen. It is responsible for the daily decision-making of the technology platform and takes all necessary decisions for its functioning in between the Plenary and Steering Group meetings. The members of the Executive Group represent ERTRAC in public events and consultation bodies. They chair the Plenary meetings.

#### ERTRAC Working Groups

[ERTRAC Working Groups](#) consist of experts from the ERTRAC members. The ERTRAC documents are prepared within the Working Groups. They include Scenarios, the Strategic Research Agenda and the research roadmaps. There are currently five working groups:

- Urban Mobility
- Long Distance Freight Transport
- Energy & Environment
- Road Transport Safety & Security
- Global Competitiveness

<sup>12</sup>

[www.ertrac.org](http://www.ertrac.org)

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In July 2014 a task force dealing with automated transport was established.

### ERTRAC Secretariat

The [ERTRAC Secretariat](#) is responsible for the daily management of the technology platform, such as the organisation of meetings and communication activities. It reports directly to the Executive Group, and assists all the bodies of ERTRAC.

### ERTRAC Supporting Institutions Group

The ERTRAC [Supporting Institutions Group](#) (ERTRAC SIG) is a non-profit association, legally established in Belgium (AISBL), supporting ERTRAC by financing its activities (office, secretariat costs, meetings and events costs, etc.).

As a whole, with the support of the previous CSA SAFIER, ERTRAC produced in 2011-2014 a total of 16 roadmaps (in line with the ERTRAC Strategic Research Agenda 2010):

- Future Light-duty Powertrain Technologies and Fuels
- Electrification of Road Transport (with **EPoSS** – European Platform on Smart Systems - and **SmartGrids** – ETP on Electrification of Road Transport, see chapter 4)
- Hybridisation of Road Transport
- Infrastructure for Green Vehicles
- European Technology and Production Concept for EVs.
- Heavy Duty Trucks
- Sustainable Freight System for Europe
- Green, Safe and Efficient Corridors
- Safe Road Transport
- Towards an Integrated Urban Mobility System (with **ERRAC**, see chapter 4)
- Road-User Behaviour and Expectations
- Climate Change Resilient Transport
- European Bus System of the Future
- Land Use and Transport Interactions
- Transport Infrastructure Innovation (Joint ETPs Task Force, see chapter 4)Energy Carriers for Powertrains
- Urban Freight Research

Research and Innovation proposals for Road made by ERTRAC are coordinated with the proposals presented by the Public-Private Partnership (PPP) **EGVI** - European Green Vehicles Initiative – which is a PPP supported by ERTRAC, together with the ETPs **EPoSS** and **SmartGrids**, with a specific focus on alternative powertrains for cars, vans, buses, trucks and two-wheelers.

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The PPP EGVI has its own Support Action, CAPIRE, which is strongly linked to ERTAC.

### 3.1.3. WATERBORNE

The **WATERBORNE**<sup>13</sup> Technology Platform is an initiative that came forth from the Maritime Industries Forum (MIF) and its R&D committee in 2005 and is making significant efforts to regularly update R&D strategy for European competitiveness, innovation and the meeting of regulations.

The stakeholders include EU associations covering deep and short sea shipping, inland waterways, yards, dredging and infrastructure, equipment manufacturers, marine leisure industry, offshore technologies, classification societies, as well as research and university institutions, society trade-unions, the European Commission and Member States.

The so-called stakeholder **WATERBORNE Support Group** is matched by a **WATERBORNE Mirror Group** of government appointed delegates.

The **WATERBORNE TP** published a VISION 2020 paper in 2005, a Strategic Research Agenda in 2006 and an Implementation Plan in 2007.

In 2011 the WATERBORNE Declaration has been published as position paper for HORIZON2020. Strategic Research Agenda and Implementation plan have been revised in 2011 and the renewed VISION2025 document has been published. As for the similar documents produced by ERRAC and ERTAC, the contents are being used by industry sectors, national R&D programs and the European Commission for defining the outline of and calls under the R&D Framework Programs.

**WATERBORNE is organized according to so-called “Technology Arenas”:**

- TA.1 Energy Management
- TA.2 Hull/Water Interaction
- TA.3 ICT and E-Maritime
- TA.4 Materials, Design and Production
- TA.5 Propulsion Systems and Fuels
- TA.E.6 New Vessels and Systems Concepts
- TA.E.7 Vessel Modeling Infrastructure

<sup>13</sup>

[www.waterborne-tp.org](http://www.waterborne-tp.org)

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They are focusing on three main areas:

- Sustainable Waterborne Transport
  - Assuring security of supply
  - Increasing the energy efficiency of ships and vessels
  - Minimising the environmental impact of ships and vessels
  - Building safer ships and vessels
  - Increasing competitiveness
  - Recruiting and retaining a skilled workforce
  - Developing advanced waterborne infrastructure including e-maritime solutions
- Support for the harvesting of offshore resources
  - Renewable energies: Wind, wave and tidal energy
  - Fossil fuels and raw materials
  - Fisheries and aquaculture
- Minimising impact on the oceans
  - Developing a better understanding the oceans
  - Improving products and services for marine monitoring
  - Increasing direct collaboration with the marine sciences

The platform has produced reports on “Route map issue” (version 2 in 2011).

Research and Innovation proposals made by WATERBORNE are split into three categories:

- Themes covered by the Public Private Partnership (PPP) “VESSELS for the FUTURE”
- Themes NOT COVERED by the PPP
- JOINT CALLS such as OCEANS of TOMORROW

FOSTER-WATERBORNE MESA (MARITIME EUROPE STRATEGY ACTION) is the current CSA supporting WATERBORNE.

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### 3.1.4. ALICE

**ALICE<sup>14</sup>** is a new ETP focusing on Logistics which has been officially launched in June 2013 with the support of the European Commission. ALICE is set-up to develop a comprehensive strategy for research, innovation and market deployment of logistics and supply chain management innovation in Europe.

Logistics is a key enabling sector for the European economy. It contributes close to 14% to the GDP of Europe (European Logistics Action Plan, 2007) and impacts on the quality of the EU manufacturing and service sectors. It is estimated that logistics account for 10 to 15% of the final cost of finished goods, thereby determining the competitiveness of Europe vis-à-vis other world region. Moreover, six countries out of the global top-10 logistic performers are from the EU in 2012 which means a potential EU leadership in the field.

European transport and research policies increasingly recognize the importance of logistics for the economy and the sustainability of transport. ALICE is based on the recognition of the need for an overarching view on logistics and supply chain planning and control, in which shippers and logistics service providers closely collaborate to reach efficient and sustainable logistics and supply chain operations. The fact that many decisions that influence transport efficiency and sustainability are made by shippers makes an integrated supply chain view indispensable. Future research should focus on new concepts in which increased collaboration and coordination will eventually result in the Physical Internet, where complete horizontal and vertical supply chain collaboration takes place.

#### **ALICE activities and output:**

1. Define research and innovation strategies, roadmaps and priorities agreed by all stakeholders to achieve the ALICE vision on Logistics.
2. Foster innovation in logistics and supply chains, stimulating and accelerating innovation adoption in order to make the growth of the European economy through competitive and sustainable logistics.
3. Raise the profile and understanding of new logistics technologies and business processes, monitoring progress and adjusting research and innovation roadmaps.
4. Contribute to a better alignment and coordination of European, national, regional innovation programs in logistics.
5. Provide a network for interdisciplinary collaborative research involving industry, academia and public institutions.

ALICE primary stakeholders are shippers and logistics service providers but also transport companies, terminal operators, support industry, research and education. All these stakeholders are encouraged

<sup>14</sup>

[www.etp-alice.eu](http://www.etp-alice.eu)

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to join ALICE Working Groups on:

1. Sustainable and secure supply chains.
2. Corridors, hubs and synchromodality.
3. Information systems for interconnected logistics.
4. Supply chain collaboration.
5. Urban logistics.

Even though it is not part of the FOSTER (RAIL) project(s) partners, due to the importance of its topics and the importance of extended cooperation, ALICE has been invited by ERRAC, ERTRAC and WATERBORNE to join the projects' discussions, as well as the future ETPs' clustered meetings.

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### 3.2. ETPs COOPERATION OBJECTIVES & ORGANISATION OF WORKS

The background for this joint work between the four surface transport ETPs is that the development of sound and consistent surface transport research and innovation strategies and roadmaps cannot let apart co-modality and cross-modal issues with and eye in final users: people and industry sectors.

Transport in Europe embraces a large scope of aspects of connected nature involving Member States, European, national, regional and local transport authorities and other stakeholders, namely manufacturing industry and public transport operators, academia and end users. Transport modes are also operating on different basis: infrastructure development and management, operations of services and funding conditions are very different according to the mode and even within one mode<sup>15</sup>. In addition, many (mostly local) rail and road and to a lesser extent waterborne passenger services are fully integrated in multimodal public transport systems and integrated mobility policies. It is therefore essential to establish the proper links and cooperation between all the relevant stakeholders both at European and Member State level with a view to improve and develop the sectors' productivity and efficiency. The sectors' aims and visions are similar to the objectives of the Europe-2020 strategy and further on the vision of the White Paper 2011 for a competitive and resource-efficient future transport system.

To accomplish these goals, according to their "FOSTER" CSA's contract the three ETPs and ALICE have - along the three years of the projects - to:

- set up appropriate channels for exchange and share of information when they address subjects challenging several ETPs such as urban mobility (passenger, freight and logistics), intelligent transport systems, innovative infrastructure and multi-modal socio-economic and behavioral research and policy making;
- consider possible combined works on identified research clusters with a view to produce common recommendations;
- propose new and stable communication channels for interaction and dissemination of the three FOSTER projects results and activities;
- support activities contributing to the dissemination of results including a participation in the thematic organisation of large transport events, such as TRA conferences<sup>16</sup>.

<sup>15</sup> For example, in the rail domain, they differ between mainline and urban domains and with the category of services, namely freight, long and medium passenger services and local rail passenger services.

<sup>16</sup> And especially TRA2014 held from 14 to 17 April 2014 in Paris-La Défense.

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The three FOSTER CSAs have in common a task "Clustering multi-modal research and innovation issues with other ETPs " covering the three first bullet points above<sup>17</sup>.

This task (task 1.1 of FOSTER-RAIL) had to be performed at the beginning of the project, in order to provide input for the work packages of each of the FOSTER CSAs.

The aims of this task – which outcomes are presented in the current deliverable – are:

- identifying the research broad items of common interest for more than one European Technology Platform (so-called “clusters”), and
- proposing an organization for the related works.

The working organization which has been preferred by the three ETPs is based on:

- Joint Working Groups: in such a case, a joint group is created, which mixes members from two or three ETPs, with identification of the lead ETP in terms of management of each group,
- Workshops: organized jointly by the ETPs on a dedicated topic, these workshops offer opportunities for representatives of the surface transport ETPs to share information and exchange views for improving their coordination.

As part of this common task, exchanges of views between ETPs benefit from information dealt with in other tasks (e.g. issues involving some national research platforms or ERA-NET members).

The FOSTER-RAIL CSA also includes a task (task 1.2) extending over the duration of the project (3 years) about “Developing links and coordination strategies between ERRAC, EU, ETPs and national technology platforms”. It shall produce a deliverable “State-of-the-Art”, and a deliverable “Recommendations” at month 35 presenting ERRAC recommendations for the future.

It has to be noted that the issue of surface transport R&I coordination with air transport R&I is outside the scope of the current project. However some suggestions may be raised as part of this task and presented to the ETP for air, ACARE, with a view to identify possible future research actions to be jointly proposed to the European Commission.

<sup>17</sup> The fourth bullet about dissemination and TRA Conferences – including TRA2014 – is addressed in a different task – task 1.3 in the case of FOSTER-RAIL.

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### 3.3. OTHER JOINT ACTIONS

#### 3.3.1. Templates and Database

It has been agreed that:

- the ETPs would try to share knowledge about evaluation of past European Research projects, with a view to determine the level of market uptake of past research outcomes (action still pending)
- joint data management should be an objective for transport research and that the surface transport ETPs should cooperate in that regard (action still pending)

#### 3.3.2. Contacts with national platforms

**ERTRAC:** EU Member States are full members of ERTRAC, with national representatives seating in the Plenary, which is the decision-making body of the platform, and moreover having the opportunity to send delegates to follow the activities of the Working Groups. In addition, there are about 10 national technology platforms related to ERTRAC, which use the SRA and roadmaps as references to develop their own national activities. At least once per year a workshop is dedicated to the collaboration of ERTRAC with and between these national technology platforms. This workshop is usually hosted by one of the national platform, giving the opportunity to present in more details their programme, activities, and actors involved. Two representatives of the Member states and one for the cities and regions act also as ERTRAC Vice-Chairmen, members of the Executive Group. Representatives of the ERA-NETs involving road transport research are also invited as observers in ERTRAC.

**ERRAC:** ERRAC has an advisory group gathering Member States representatives.

Within FOSTER-RAIL, the management of contacts with national bodies – and bilateral programmes like DEUFRACO, the bilateral Franco-German scientific and technical research programme for surface transport – is within the scope of task 1.2 (see deliverable D1.2).

#### 3.3.3. Contact point for TRIP

The contact point for TRIP, the Transport Research & Innovation Portal was Mr Geert Smit Panteia, Director: [g.smit@nea.panteia.nl](mailto:g.smit@nea.panteia.nl) (Phone: 0031 79 322 23 97)

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### 3.3.4. Surface ETPs joint coordination meeting with ACARE

A first contact of the four surface transport ETPs with ACARE, the ETP for air transport has been organised on 14 May 2014 for an exchange of views about possible cooperation between the sectors. All participants agreed that there is a need to improve in the near future the coordination between the surface transport ETPs and ACARE. It was agreed to consider the opportunity to include ACARE in a proposal made by the ETPs as an answer to action MG.9.6 of the first Horizon 2020 call. ACARE confirmed that they were interested and were looking into ways of cooperating.

In the end all three FOSTER ETPs had decided to work together with ALICE and ACARE to prepare a more detailed action plan involving all surface transport ETPs and the Air ETP (ACARE).

These proposals are now in the SETRIS project.

## 4. CLUSTERING JOINT MULTI-MODAL RESEARCH AND INNOVATION ISSUES

The ETPs organised/planned several meetings/conference calls in addition to frequent email exchanges with a view to cluster joint multi-modal Research and Innovation issues of common interest.

The first important joint ETPs' meeting was organised on the 30<sup>th</sup> of September 2013, where it has been agreed to build up future joint actions from the three ETPs on the current outcomes of three on-going partnerships, and to enlarge the scope of works through dedicated workshops identifying technical areas of common interest. In addition, WATERBORNE agreed to screen the roadmaps produced by ERRAC and ERTRAC to select research activities which might be shared between the ETPs. The second face meeting was organised on the 30<sup>th</sup> of January and the third one on the 14<sup>th</sup> of May 2014. Due to the acknowledge importance of the topics covered by this ETP, ALICE had been participating and contributing to this group since November 2013, even though it is not an official member of the project(s).

**The three research and innovation areas already involving various ETPs are as follows:**

- **Urban Mobility (ERRAC-ERTRAC\_ALICE);**
- **Cross-modal Transport Infrastructure Innovation (Various ETPs);**
- **Long Distance Freight (ERRAC-ERTRAC-ALICE).**

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The results of the clustering works are presented below for each of these three topics.

The ETPs suggested to organise another workshop/conference with a relevant participation from the European Commission, with the aim to develop key areas on cooperation activities such as ETP-EC, ETP-ETP and ETP-EC-TPC. In these discussions, a coordination and/or linking between the ETPs' different Member States groups and Scientific Groups may be addressed.

## 4.1. Urban Mobility

The previous FP7 coordination and support actions ERRAC ROADMAPS and ERTRAC SAFIER provided the first example of a co-operation between two ETPs for the development of joint roadmaps on a selected cluster: Urban Mobility. This research activity has been probably for the first time in European research projects as a common task in different research actions.

Each platform benefitted from the cross-participation in ETPs meetings of experts of the other platform. Each platform first produced separately a roadmap on Urban Mobility dealing with multimodal issues, prepared on ERRAC side under the leadership of UITP, and on ERTRAC side under the leadership of POLIS. Then both platforms joined their efforts to bring both documents into a single one endorsed at the highest level of each platform. This "Joint ERTRAC-ERRAC Urban Mobility Research Roadmap" was published mid-2012, based on the ERTRAC roadmap on "The integration of the urban mobility system" and on ERRAC "Urban mobility research roadmap".

The joint documents had a common objective: "Towards an Integrated Urban Mobility System". They proposed research actions in the following areas:

- integration between the various modes, ensuring that their complementarity through intermodal solutions;
- modes coexistence on the urban mobility network: to develop tools enabling the highest level of integration possible;
- physical integration in the network, including support for electric vehicles;
- challenge of building and locating intermodal infrastructure supporting mobility services, for passenger transport and for urban goods delivery;
- cooperation models allowing the efficient exchange of information between the actors of the urban freight delivery sector;
- integrating the management of the various components of the network, in particular traffic management and public transport;
- new possibilities offered by cooperative mobility for the integration of the urban mobility system: data collection, data mining and analysis.

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Past cooperation has allowed the integration of urban multimodal concerns in several ERTRAC documents.

This was the case in the ERTRAC following documents:

- *Electrification of Road Transport roadmap;*
- *Towards an Integrated Urban Mobility System roadmap;*
- *Road User Behaviour and Expectations roadmap;*
- *European Bus System of the Future roadmap;*
- *Land Use and Transport Interactions initiative;*
- *Urban Freight Research.*

The beginning of cooperation in this field was the input given by ERRAC on the ERRAC paper on "Land use and transport interactions" (LUTI – 2013). It must be noted that LUTI had been produced at about the same time as the ERTRAC "Roadmap for cross-modal transport infrastructure innovation"

The main decision regarding ETPs cooperation taken within the FOSTER-RAIL framework has been to open the ERTRAC Working Group on Urban Mobility to representatives of ERRAC and WATERBORNE. ERTRAC had also been invited to several meetings of the ERRAC urban mobility working group. Thus

Two meetings of a dedicated Urban Mobility Working Group task force on "Urban Logistics" have been organized with the participation of all ETPs, co-organized with ALICE, for the preparation of a Joint roadmap on Urban Freight. ERTRAC and ALICE together have led the process to define a research roadmap on urban freight. ERRAC and Waterborne have been consulted for the preparation of this roadmap, which include references to multimodality and specifically to the role of rail and waterborne in urban freight distribution.

ERRAC representatives participated in several other meetings of the ERTRAC WG on urban mobility (after the last ETP meeting in May 2014) and ERRAC contributed with ERTRAC and ALICE to the outcomes of the ERTRAC WG.

These meetings discussed not only the *urban logistics* (as mentioned above) but also on the *proposals for the call 2016-2017 of H2020 for urban mobility*: the ERTRAC and ERRAC proposals for this new call have been made known on either side and discussed during the last two ERTRAC Urban Mobility WG meetings. Moreover, these works have been used as input in the ERRAC SRRIA and are an input for the FOSTER RAIL roadmaps, which are work in progress.

The meetings and outcomes have been as follows regarding H2020 Recommendations for 2016-2017 (A first exercise had indeed been done last year for 2014-2015):

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- First semester 2014:
  - Invitation and agenda of Urban Mobility workshop of 18 June.
  - Outcome of the workshop: Urban Mobility recommendations (June version).
  - Condensed recommendations as sent by ERTRAC to the EC in June.
- Second semester 2014:
  - - Invitation and agenda of Urban Mobility workshop of 9 December.
  - - Outcome of the workshop: Urban Mobility recommendations (December version).
  - - Full document of recommendations as sent by ERTRAC to the EC in December.

As for the Urban Freight roadmap it is currently being sent for printing, for distribution at the upcoming ERTRAC Conference. Previous versions have already been circulated, without the final design.

### Lessons Learned

Looking on the cooperation between the ETPs, it can be noted that the topic of urban mobility had witnessed the biggest output of all ETP activities supported by the FOSTER projects.

It is clear that the very nature of the topic partly explains this success – the urban domain is the most challenging and most 'agglomerated' one, and stakeholders need to constantly interact in order to find quick and viable solutions. However, this aspect is only a part of the explanation.

There are two more important reason behind this close cooperation. The first is the fact that many of the ETP representatives – especially those from ERRAC and ERTRAC – had started the first cooperation/coordination activities before the establishment of the FOSTER programmes. In this sense the CSA have accomplished one of their task, fostering cooperation between the transport stakeholders in order to obtain clear, significant and durable results. All partners are satisfied with the level of cooperation, and it is estimated that the future activities will have a more rapid pace of development, given the experience gained in this period. The second aspect is the involvement of certain stakeholders that have a good understanding and a sufficient level of implication in the different (sub)sectors that make up the larger topic of Urban mobility. UITP is one of the best cases, since urban mobility is at the core of the UITP membership business; and on this basis, UITP has been involved in numerous activities related to both ERRAC and ERTRAC, thus facilitating the creation of bridges between the two sides.

Looking at the actions undertaken to date, the experience has shown that ETPs can work together and, once the topic and the course of action had been agreed, the implementation phase is not very difficult, even though it is not always fast.

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This brings the attention towards another lesson learned, namely the fact that bringing together a high number of stakeholders can indeed produce very good outcomes, but at a price. And in this case the price is long periods of time. It is difficult for such a high number of rather different stakeholders to agree on actions or finalize documents in a short period of time, consequently the planning and expectations need to take into consideration a longer time span.

While the speed of this progress is clearly an aspect to be improved, a fact that had been recognized also at the ETP level, the current level of achievement offers sufficient hope for a better cooperation in the next project(s).

## 4.2. Cross-modal Transport Infrastructure Innovation

A joint Working Group gathering representatives of ERRAC, ERTRAC and WATERBORNE together with ACARE (Advisory Council for Aeronautics Research in Europe) and ECTP (European Construction Technology Platform) started working in 2012 and produced in June 2013 – partially as part of FOSTER-ROAD and FOSTER-RAIL works – a “Roadmap for cross-modal transport infrastructure innovation – Towards a performing infrastructure” structured according to three inter-related domains.

The clustered research activities identified in each domain are as follows:

- Construction & Maintenance:
  - Non-intrusive construction, maintenance, enhancement and renewal :
    - advanced survey, inspection and testing;
    - advanced construction concepts and processes;
    - advanced maintenance and rehabilitation.
  - Towards zero carbon footprint :
    - energy harvesting;
    - low carbon construction;
    - infrastructure for low and alternative energy transport;
  - Multi-modal transport nodes and corridors:
    - optimal location, operation and accessibility to and within terminals, hubs and gateways;
    - seamless interchange of freight and passengers;
    - synchro-modality over key transport corridors.
- Supporting Systems & Services:

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- Integrated transport infrastructure data/information systems ;
  - active infrastructure;
  - meta (common data) information architecture;
  - data/information sharing – realising the meta-information layer;
  - data/information security.
- User information management :
  - transport user expectations and acceptance factors;
  - market opportunities and acceptance factors;
  - coordinated travel process management;
  - disruption and recovery management.
- Safe and secure transport infrastructures and operations:
  - advanced safety technology;
  - advanced safety management systems;
  - advanced security systems.
- Governance, Management & Finance:
  - Resilient transport infrastructure operations across Europe :
    - intelligent traffic management strategies;
    - advanced capacity planning and incident management;
    - climate resilient infrastructure network.
  - Decision making in European transport infrastructure investment:
    - advanced asset management system;
    - infrastructure-driven spatial quality;
    - advanced investment strategies;
    - innovation governance.

During the FOSTER RAIL cooperation, the opinion of the surface transport ETPs is that what had been achieved is comprehensive enough for the moment, and that no update of the roadmap is necessary before 2015.

However the discussion on *infrastructure* had revealed a number of common points of interest. Even though it had been decided not to create any joint WG, input from the infrastructure roadmap and the discussions between ETPs has been used for SHIFT2RAIL structure and approach.

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### 4.3. Long Distance Freight

The existing ERTRAC Working Group on Long Distance Road Freight has already prepared a roadmap, with ERRAC representatives participating in the group. The major research areas which have been selected by the group are as follows:

- Aligning transport technologies with road transport needs:
  - Vehicles matching consignment e.g. new standard load modules;
  - Improving basic vehicle effectiveness (energy-management, aerodynamics etc.).
- Improved transport system utilisation through logistic information management:
  - *Next stage in e-freight;*
  - Next generation forecasting and policy analysis tools;
  - Architecture for information exchange and cooperation between agents;
  - *Smart hub concepts for horizontal collaboration.*
- Increased transport capacity through corridor and system innovation:
  - vehicle-infrastructure integration/semi-automatic driving;
  - *Information/communication management (key parameters over the chain).*

During the first joint ETPs meeting (30 September 2013), several of these areas have been identified (see italics) as of common interest for the three ETPs.

Moreover, it was proposed and agreed that the topic of “Infrastructure” is also to be included as an additional focus point for later work.

In addition, WATERBORNE checked the existing roadmap to identify cross-modal issues, and identified one as follows: “Connection points inside the freight corridors, including harbours and ports”.

All ETPs decided to organize on the 30<sup>th</sup> of January 2014 a joint workshop on Long Distance Freight Transport involving as well the participation of ALICE. The “FOSTER\_LDFT meeting” has been attended by 22 participants from the four European Technology Platforms –ETPs – and from the European Commission (John Berry, DG MOVE). It was organised in three sessions:

- Session 1: “European E-freight Capabilities for Co-modal Transport”
- Session 2: “Rail freight, Green Corridors and Cross Modal research topics”
- Session 3: “Building sustainable transport corridors, beyond existing paradigms”

John Berry, DG MOVE, pointed out that connecting transport modes is an important goal, to be achieved through actions related with TEN-T and Connecting Europe Facility. They should be

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developed under HORIZON 2020 Work Programme<sup>18</sup>, where Logistics and ICT also play a key role. It is important to give a focus on the efficiency and competitiveness of industry and not only on sustainability and safety.

### Session 1: European e-freight Capabilities for Co-modal Transport<sup>19</sup>

The session started with a presentation of the E-Freight project<sup>20</sup> aiming at the creation of a framework for the tracing of goods in real time ensuring intermodal liability.

Three priorities for e-freight were mentioned<sup>21</sup>:

1. A standard framework for freight information exchange covering all transport modes and all stakeholders;
2. A single European transport document for all carriage of goods, irrespective of mode, to be developed along with all the necessary legislative support;
3. A single window (single access point) and one-stop-shopping for administrative procedures, whatever the mode.

Many different information systems are used. The big players have their own rules and would not change. SMEs use what they must use (either imposed by regulation or by their big customers). Non-proprietary tools would help SMEs to invest in applications providing the real-time visibility of information currently lacking.

Successful implementation requires an independent central body holding confidential information.

A ***governance model for e-freight is therefore really important***, although very difficult to implement due to confidentiality in such a competitive business.

Other challenges identified during the discussions are the development of market standards and an increase of the number of market players at a larger European scale. The frontier between further research and business matters needs to be clarified.

Today the freight industry faces very high costs to ensure connectivity, and is reluctant to adopt new systems even if they promise dramatic cost reduction.

<sup>18</sup> Both transport RTD and TEN-T projects will be managed by the same agency.

<sup>19</sup> Presented by Mary Vayou, BMT.

<sup>20</sup> E-freight film: <http://vimeo.com/62234636>

<sup>21</sup> The World Bank Logistic Performance Index was mentioned:  
[http://siteresources.worldbank.org/TRADE/Resources/239070-1336654966193/LPI\\_2012\\_rankings.pdf](http://siteresources.worldbank.org/TRADE/Resources/239070-1336654966193/LPI_2012_rankings.pdf)

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Further RTD issues identified as necessary are the optimisation issues and more visibility in supply chains but with affordable solutions: simple systems, easy to implement even for smaller companies.

## Session 2: Rail freight, Green Corridors and Cross Modal research topics

The session was introduced by an overview of multi-/inter-/co-/and synchro-modal EU-projects since FP4<sup>22</sup>, which showed how logistics planning and EU policy might look like based on the EC's Transport White Paper 2011. This includes green corridors for over 300km and 50% modal shift from road to rail and sea. The total cost aspect has to be considered, and other big issue are regulations for Europe including e.g. Russia.

Combination of slow steaming and fast trains is a challenge. Which percentage of freight transported from China to Europe by train in addition to ship would be best beneficial for the supply chain? also targeting a reduction in the delivery time (currently 18 days as an average).

Regarding Green Corridors, today there is still no single railway system and common regulation is needed. Corridor managers are key actors to get this done. Expected transport increase will "push freight transport in all directions" anyway, and Research and Innovation may help better coordination.

## Session 3: Building sustainable transport corridors, beyond existing paradigms

The session<sup>23</sup> stressed that: goods average travelling speed is slow, no matter how fast the mean of transport. Goods spend most time just waiting. In the past ten years zero improvement on load factors was achieved, increasing the cost due to inefficiency.

These paradigms need to be changed as developed from 2008 by Procter & Gamble in their project "TINA – Trains Intermodality, a New Approach; There Is No Alternative", which targets a shift from existing 10% intermodal share (2008) up to 30% in 2015, with an increase of the load capacity mixing light and heavy products.

Another P7 project, the FP7 MODULUSHCA project<sup>24</sup>, addresses the recently introduced new concept for logistics operations "Physical Internet" vision, which proposes using a new framework of interconnected logistics especially designed for open source sharing, notably thanks to open standards on new modular load units, real time identification and routing through open shared facilities.

Modular load units are partly existing (automotive supply) but are usually proprietary systems. A target for improving the current situation would be to expand the use of modular load units, tailor

<sup>22</sup> Presented by Tom Zunder, Newcastle University

<sup>23</sup> Presented by Sergio Barbarino, P&G (Procter & Gamble).

<sup>24</sup> Modular Logistics Units in Shared Co-Modal Networks.

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made up to fitting to assembly line at Original Equipment Manufacturing sites (OEMs), which would make automation easy. New RTD topics may consider the relation between the manufacturing and supply industries and the logistics so that they can be planned at the same time in a lean and smart way. They should take into account TEN-T corridors and be based on further contacts between ETPs.

Other areas which have been highlighted during the workshop are as follows:

- Materials for standardized loads, tracking systems for loads, integrated automatic cooling systems of loads
- Design of hubs and the necessary handling of information to manage hubs and improve their operations as a very important part of the logistics chains
- Reliability of supply chains
- Benefits from combining or separating people and goods transport flows

It has also been agreed that the Green Corridors Managers will be made aware by ALICE of the outcomes of the workshop as soon as they are appointed by the European Commission.

A new joint workshop on Long Distance Freight (Surface) Transport was to be arranged by Newcastle University in collaboration with ALICE, and was initially planned to be organised early Autumn 2014, which has eventually not been materialized.

The aim of such a workshop would be to further discuss on current and new ideas for cooperation, as well as on potential future scenarios and on the enabling research and innovation. It would be as well to further clarify potential areas of common interest and relevant joint working cooperation structure. However, the set-up of this workshop has been postponed, since a part of the foreseen topics will be addressed more thoroughly within the SETRIS work programme. The ETPs' representatives had agreed that once the SETRIS outcome will be known, the discussions will resume in order to define the agenda of this second workshop.

As the SETRIS result is now public, the ALICE, ERRAC and ERTRAC members are discussing the details of organizing this activity.

Another new activity concerned an increased cooperation with the ETP ALICE, since several members of ERRAC and ERTRAC are also ALICE members. The participation in working groups, steering meetings and in conferences will facilitate common agendas, as well as an understanding of different parts of the sector (logistics, transportation, vehicle manufacturer, infrastructure managers, operators, vehicle owners, product manufacturer, etc.). By aligning the project planning overlaps can be avoided as well as silo thinking. Another aim is that stakeholders from the different parts of the sector will have enough information to form consortia for answering transport calls, thereby widening the ETPs' work and building valuable links for future cooperation.

This means that decisions in the ETPs can be discussed in a cross modal manner before the green light

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is given. The value of the ETPs as input providers of relevant and implementable European research and innovation activities will thereby be enhanced. By this process, the quality assurance of the decisions and standpoints can be followed, and the discussion with relevant directorates improved. A part of this can also be participation or sessions in conferences and in TRA.

The leaders and key persons involved in Long Distance Transport in the different ETPs are to meet on a regular basis, in order to: exchange information, develop cooperation, and discuss possible common documents, topic development and project participation.

A special working group shall study the implementation planning, across the different sectors, starting from each ETPs' LDT work, and look at how the sector implements the results. The majority of this work can be done in follow-up of the FOSTER project(s), namely the SETRIS project(s). Key factors for success should be described.

### **Lessons Learned**

The workshop discussed problems and difficulties in developing areas suitable for sector wide international projects. In the transport sector, with small margins and a competitive business environment, some areas are difficult to address, such as governance model for e-freight. One key success factor is the inclusion of the sector stakeholders, for the definition of pre-competitive areas and taking advantage of their ability to assess the implementation potential.

Another lesson learned is the value of meetings and information exchange. Just by having workshops, meetings or working groups, the knowledge and understanding among and between the stakeholders is developed. Such activities may be fruitful even if the output does not seem to be very new or comprehensive. Also, by working in other ETPs' working groups and in reference groups in EU projects, different methods and best practices can be shared, both within the sector(s) and among the different ETPs' stakeholders.

Structured partnerships within a part of the sector, as in a JU, can lead to improved overall cooperation and knowledge. It must be seen as an integral part of the overall scope of that part of the sector, while keeping its focus on its deliverables. The Vision, Business case and the Strategic Research Agenda should be an overall context in which the partnership work fits into, while the specific projects and results, work planning and participation are to be held in the partnership (the JU).

The partnership is also to do one's own roadmaps for one's own work in order to have a structured work plan. By sharing the basics of these roadmaps between the ETPs, a ground for common future development can be laid. A structured partnership instrument, by its modus operandi and membership, allows for specific projects to be practically connected, seen in the long term, reflecting and enabling to achieve the Vision, Business case and the Strategic Research Agenda of the ETP.

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#### 4.4. Other clusters

Up to now, other clusters which have been identified have not involved more than one of the four surface transport ETPs, but **ERTRAC** has worked jointly with some non-transport ETPs in the following areas:

- With **EPoSS** ETP (Smart Systems) and **SmartGrids** ETP on Electrification of Road Transport
- With **FoF** (Factories of the Future) and **E2B** (Energy Efficient Building): joint approach for Contractual Public Private Partnerships

Non-transport specific ETPs might be associated to the works of the surface-transport ETPs for ad-hoc contributions: it has been agreed that each ETP shall be responsible for the contacts with non-transport ETPs where relevant.

For long distance passenger transport, the discussions did not lead up to now to any concrete proposal for common action between the rail and road sectors within the frame of the current CSA.

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## 5. EXPERTS POTENTIALLY INVOLVED IN THE COMMON WORKS

Experts candidate for working on topics of common interest are presented below for each of the three platforms. These lists shall be completed to the larger extent possible in future updates, with an identification of the main areas of interest. Moreover, each ETP and depending on the works will appoint other persons within their networks to those specific works.

### 5.1. FOSTER-ROAD

Name	Company	Main areas of interest	Email
Ruud Smit	FEHRL, leader of the joint transport infrastructure research roadmap	Infrastructure	<a href="mailto:ruud.smit@fehrl.org">ruud.smit@fehrl.org</a>
Sylvain Haon <sup>25</sup>	Polis, co-leader urban mobility working group	Urban Mobility	<a href="mailto:shaon@polisnetwork.eu">shaon@polisnetwork.eu</a>
Andres Monzon	UPM, co-leader urban mobility working group	Urban Mobility	<a href="mailto:andres.monzon@upm.es">andres.monzon@upm.es</a>
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## 5.2. FOSTER-RAIL

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<sup>26</sup> And former leader of the ERRAC ROADMAP WP03 covering two areas: “Urban, Suburban and Regional Rail” and “Urban Mobility”.

<sup>27</sup> DRTI (Donetsk railway transport institute, Ukraine). Proposed by EURNEX

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<sup>28</sup>

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